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Vitamin C in Orange and Tomato Juice U. S. Department of Agriculture

A radio talk by Miss Ruth Van Deman, Bureau of Home Economics, delivered during the Department period of the National Farm and Home Hour, September 10, 1936, and broadcast by NBC and a network of 50 associated radio stations.

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MR. SALISBURY: Now once again your home economics reporter, Ruth Van Deman, is here to bring you news of the research going on in the laboratories that she covers. Ruth, that's a very scientific looking publication you have there in your hand.

MISS VAN DEMAN: Yes, this is the Journal of Home Economics, the publication of the American Home Economics Association. This September number just came today. I brought it along because it has an article by Mrs. Daniel associated with Doctor Munsell in the nutrition work. The title is "The relative vitamin C content of orange and tomato juices determined chemically and biologically".

MR. SALISBURY: What did they find out chemically and biologically about the vitamin C in orange and tomato juice?

MISS VAN DEMAN: They found, for one thing, that orange juice is two or three times richer in vitamin C than tomato juice. They used four varieties of oranges in these tests, two from Florida and two from California, and they chose their fruit at the height of the season. For the tomato juice, they pressed one lot of samples from fresh raw tomatoes bought on the market here in Washington, and another lot from commercially canned tomatoes packed in New York State. That gave them samples of juice from the kind of oranges and tomatoes people are likely to buy on the open market.

For the biological tests, they fed samples of these juices to guinea pigs for 90 days. For the chemical lists they also analyzed the juices in the laboratory to find the amount of ascorbic acid present. From these two series of tests they discovered that it took two or three times as much tomato juice as orange juice to supply the same amount of vitamin C.

That's what they found about the juice when it was squeezed and used at once. They also found that both orange and tomato juice lose vitamin C potency when they are allowed to stand. For instance, if you squeeze oranges at night, cover the juice put it in the refrigerator, and keep it until breakfast the next morning, it loses 10 percent or more of its vitamin C value. And the same thing happens to tomato juice unless it's sealed in an airtight can.

Now for the practical application of these findings to human nutrition. They have the most important bearing probably for babies fed by formula on cow's milk and prepared foods. For them, the orange or tomato juice is their only way of getting vitamin C. And unless they get enough vitamin C they may fall victim to infantile scurvy.

Last year many child health specialists and trained dietitians were surprised

and shocked when Dr. Thomas Cooley, then president of the American Academy of Pediatrics, announced that more and more babies were coming into the hospital with mild and sometimes severe cases of scurvy. He attributed it to the hard times, which made it difficult for many mothers to provide the daily fruit juice for the baby.

Well, definite facts such as these Doctor Munsell and her coworkers have found about the relative merits of tomatoes and oranges as a source of vitamin C help to bring us a step nearer to the control and let us hope to the prevention of scurvy even in its incipient stages. It's in this insidious, difficult-to-diagnose way that it makes its inroads on babies and leaves a mark that they never completely outgrow. These mild forms of scurvy often pass under the general name of malnutrition, and people do not realize how easily they might have been prevented by a simple thing like the right amount of orange juice or tomato juice given every day.

Now just a word about home-canned tomato juice. The idea has got abroad that the home methods of putting up tomato juice may destroy so much of the vitamin C as to make it not worth doing. We don't agree with that. It is true that subjecting tomatoes to heat and air as is bound to happen at some point during canning will destroy some of the vitamin value. But even so home-canned tomatoes and tomato juice remain among our best and cheapest sources of certain vitamins. So go ahead and can all the tomatoes you wish. But remember that it takes 2 or 3 tablespoons of tomato juice to equal one of orange juice in vitamin C, and don't let either one stand around any longer than you can help before serving.

That's the gist of this scientific report. Last week I told you about our new bulletin "Diets to fit the family income", Farmers' Bulletin 1757. That bids fair to be the most popular bulletin yet. We're answering your requests just as rapidly as we can. The typewriters are clicking. But it will take us some days to dig out from under your avalanche of post cards and letters. And by the way, the Bulletin 23 Mr. Salisbury and I mentioned was one that went out of print long, long ago. We haven't any copies of that to send you. It's an antique, but we are mailing you "Diets to fit the family income" just as rapidly as we can handle the mail.

Well, Morse, that's all for me today. And goodbye everybody until next week

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